Instruction Manual

1T-CT-610 Series
HDMI to CAT.6 Extenders

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1.0 INTRODUCTION

Thanks for purchasing the 1T-CT-610 Series HDMI Extender product from TV One. The individual components of this series of HDMI to CAT.6 Extenders consist of the 1T-CT-611 Transmitter, the 1T-CT-612 Receiver and the 1T-CT-613 Repeater which constitutes a system used to transmit deep color (12 bits) V1.3 HDMI or DVI-D signals at resolutions up to 1920x1200 and 1080p, plus transmission of embedded lossless audio, over Cat.5e or Cat.6 cables. The 1T-CT-611-612 can achieve signal distribution distances of up to 45 meters (150 feet) for 1080p/8 bit signals and 15 meters (50 feet) for 1080p/12 bit signals. This distance can be extended a like amount with the use of the 1T-CT-613 Repeater. For normal operation, two Cat.6 cables are required, one for the main signal and one for the HDCP/DDC signal. The transmit and receive products also feature the unique TV One-task locking power connectors to enhance overall system mechanical security.

Our professional video conversion products have been serving the industry for over twenty years. TV One offers a full line of high quality Seamless Switchers, Video Scalers, Up/Down/Cross Converters, Analog-Digital Converters (SD/HD-SDI, HDMI, DVI), Format Converters, Standards Converters, TBC/Frame Synchronizers, Matrix Routing Switchers, Signal Distribution Amplifiers and Cat.5 Transmission Systems.

1.1 Liability Statement

Every effort has been made to ensure that this product is free of errors. TV One cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

TV One reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

All third party trademarks and copyrights are recognized. The TV One logo, TV One-task and CORIO are the registered Trademarks of TV One. All other trademarks are the property of their respective holders.

1.2 Features

This series of HDMI to CAT.6 Extender systems have many features that enable them to perform in a superior manner. Among these features you will find:

- Resolutions to 1920x1200, 1080p @ 60Hz
- 1080p/8 Bit signal distribution up to 45 meters (150 feet)
- 1080p/12 Bit (Deep Color) signal distribution up to 15 meters (50 feet)
- Supports Embedded HDMI v1.3 Lossless Digital Audio
- Compliant with HDMI v1.3, HDCP 1.1 and DVI 1.1 specifications
- Supports CEC & xvYCC protocols
- Supports CAT-5e/CAT-6 cables of variable types
- Supports high definition input up to 1080P, output resolution follows input
- Locking +5VDC Connectors for enhanced mechanical security

2.0 SPECIFICATIONS

Video I/O	
1T-CT-611 Tx-HDMI Input	1x via HDMI Connector
1T-CT-612 Rx-HDMI Output	1x via HDMI Connector
Cat.6 I/O	
1T-CT-611 Tx – Cat.6 Output	2x via RJ-45 (Video & DDC)
1T-CT-612 Rx – Cat.6 Input	2x via RJ-45 (Video & DDC)
1T-CT-613 Repeater I/O	4x via RJ-45 (2x Video & 2x DDC)
Cat.6 Structure	
Video Connector	HDMI Video/Audio Signal
DDC Connector	HDCP/DDC Control Signal
Supported Signals & Protocols	
Industry Standards	HDMI v1.3, HDCP 1.1, DVI 1.1, CEC, xvYCC
Video Performance	
Maximum Resolution	Up to 1920x1200, 1080p/60Hz
Video Bandwidth	2.25Gbps
Maximum Range	
1T-CT-611/612 Tx/Rx System	1080p/8-bit Color: 45 meters (150 ft) 1080p /12bit Deep Color 15 meters (50 ft)
1T-CT-613 Repeater (One permitted)	1080p/8-bit Color: 45 meters (150 ft) 1080p /12bit Deep Color 15 meters (50 ft)
Environmental	
Operating Temperature	0° to +50° C (+32° to +122° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-10° to +70° C (12° to +158° F)
Storage Humidity	10% to 90%, Non-condensing
Warranty	
Limited Warranty	2 Years Parts and Labor
Regulatory Approvals	
Encoder/Decoder Unit	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
Cable Requirements	
CAT.5e or CAT 6	Network Grade, Premium, Shielded
Mechanical (H-W-D)	
1T-CT-611Tx, 1T-CT-612 Rx (HWD)	23x50x62mm (0.9x1.97x2.44”)
1T-CT-613 Repeater (HWD)	23x50x72mm (0.9x1.97x2.84”)
Weight	
1T-CT-611 Transmitter	90g (0.20 lbs)
1T-CT-612 Receiver	96g (0.21 lbs)
1T-CT-613 Repeater	106g (0.23 lbs)
Power Requirement	
External Power Supply	5 VDC@2A, Locking DC (Except 1T-CT-613)
Accessories Included	
1x Power Adapter (Except 1T-CT-610) 1x User Manual	US, UK or Euro
Model Numbers	
1T-CT-611	HDMI to Cat.6 Transmitter
1T-CT-612	Cat.6 to HDMI Receiver
1T-CT-613	Cat.6 Repeater

3.0 CHECKING PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- 1x Repeater, Transmitter or Receiver unit
- 1x Power Adapter (Except 1T-CT-613)
- 1x Operations Manual

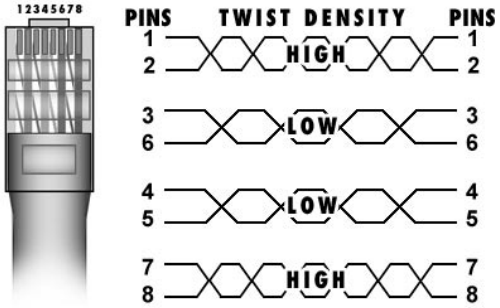
Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model and Serial Number and Invoice available for reference when you call.

4.0 CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the signal input, outputs, power requirements/inputs plus any controls present. *Note: The resolution capability of the remotely located display devices must be capable of displaying the output of the source device. Before connecting the CAT.6 extender system, verify that the display device on the receiving end can support the output resolution and signal format by connecting it directly to the source device.*

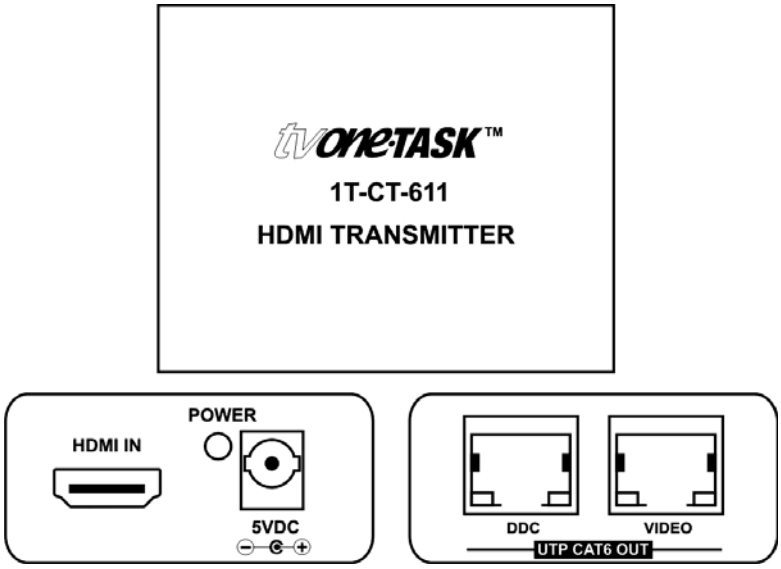
4.1 Cat.5e/6 Cable Notes

Pins and pairing. Make sure the CAT5e/6 cable pin assignments are standard. The correct pairing is straight through, pin-to-pin, with pairing as follows.



Twist density. UTP cable pairs have different twist densities (twist pitches). There are two pairs with high density twist and two pairs with low density. Colors vary by manufacturer. Twist densities can be seen by stripping off about 10 cm (4') of insulation and visually inspecting. Pairs 1-2 and 7-8 should be assigned to high density twists. Failure to assign correct twist densities can result in image jitter. The ABCD picture shows typical UTP cable, with pairs A and C showing a high pitch twist (assigned to pin pairs 1-2 & 7- 8), and B and D with low pitch twist (assigned to pin pairs 3-6 & 4-5).

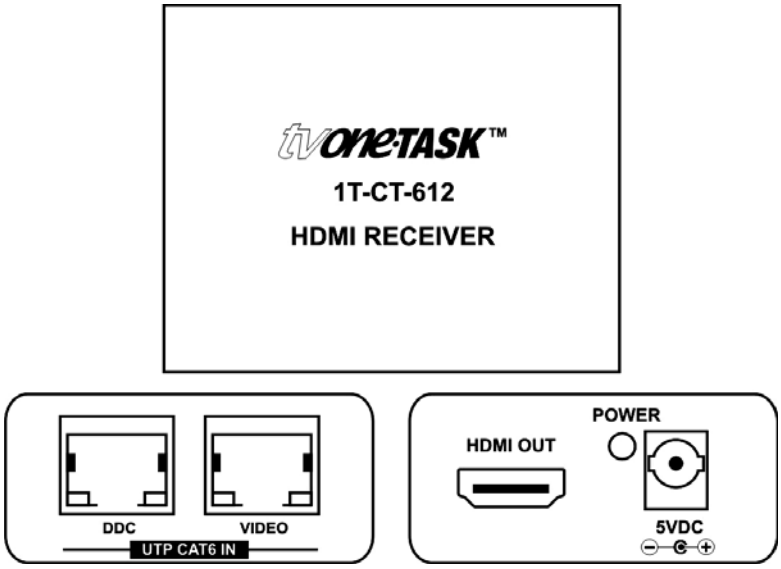
4.2 1T-CT-611 Transmitter



Connect the HDMI source device's output to the HDMI IN connector of the 1T-CT-611 Transmitter, using an appropriate HDMI cable of no more than 15 meters (45') in length.

1. Connect a Cat.5e or Cat.6 cable to the Video output connector of the Transmitter. Connect a second Cat.5e or Cat.6 cable to the DDC output of the Transmitter. Mark the cables at both ends so that you do not inadvertently swap them. Defer connecting the AC adapter until the Cat.5/Cat.6 cables are connected to both the Transmitter and the Receiver.

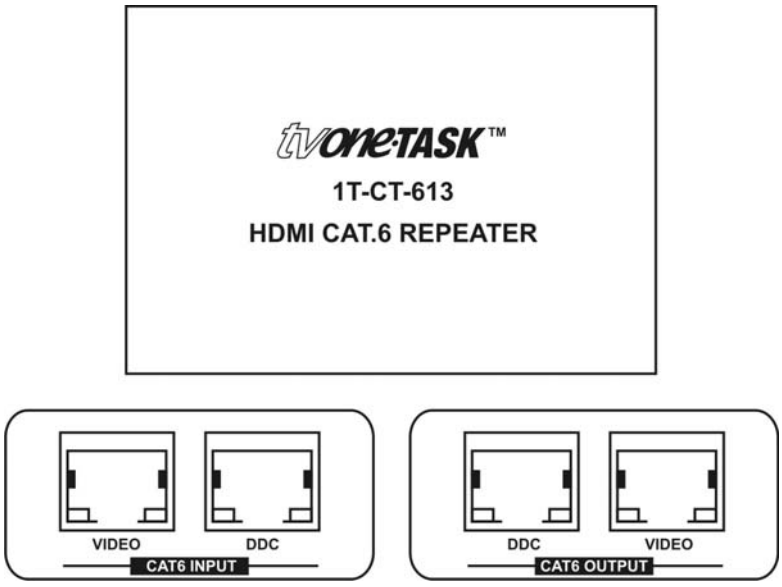
4.3 1T-CT-612 Receiver



1. At the remote location, connect the appropriate Cat.5e or Cat.6 cables to the Video input and DDC Input connectors of the Receiver. Do not interchange the cables. The Video cable must be connected to the video inputs and outputs in both the Transmitter and the Receiver products and the DDC cable must likewise be connected to the DDC inputs and outputs on the devices.*
2. Connect the HDMI connector of the Receiver to the HDMI input of the remote display or other device, using an appropriate cable no more than 15 meters (45') in length.
3. Connect the supplied AC adapters first to the Transmitter and Receiver and then to the AC sockets.
4. Lastly, turn on the source device and remote display. The source signal should now appear on the remotely located display. If not, consult the Troubleshooting section of this manual.

** Note that when a 1T-CT-613 Repeater is being used in the Cat.5e/Cat.6 cable path, you must also make certain to connect the Video and DDC cables properly. Marking all cables at both ends so that they cannot be improperly connected is strongly recommended to avoid unnecessary problems later on when the cables are hidden within the walls.*

4.4 1T-CT-613 Repeater



The 1T-CT-613 Repeater is used to extend the signal distribution range provided when using an HDMI to Cat.6 Transmitter and receiver system alone. The instructions that follow assume you have already installed the appropriate Cat.5e or Cat.6 cables in the desired areas of your building.

1. Repeater Video and DDC inputs are usually connected to the Cat.5e/Cat.6 cables at the far end of a cable run (the end normally connected to the receiver inputs). In

essence, if the allowed signal distribution distance is insufficient to meet the requirements, a repeater is inserted into the signal path. The cables coming from the transmitter are plugged into the repeater inputs thereby allowing insertion of another section of cabling into the path. At the far end of the desired distribution system, the 1T-CT-612 Receiver is then connected to the Video and DDC cables connected to the 1T-CT-613's outputs. A 1T-CT-613 Repeater increases the total range by 45 meters (150 Feet) for 1080p/8 bit HDMI signals or 15 meters (50 feet) for 1080p/12 bit HDMI signals.

2. Connect a Cat.5E or Cat.6 cable to the Video input connector of the Repeater. Connect a second Cat.5E or Cat.6 cable to the DDC input of the Repeater. Connect a third Cat.5E or Cat.6 cable to the Video output connector of the Repeater and lastly connect a fourth Cat.5E or Cat.6 cable to the DDC output of the Repeater. Mark all cables at both ends so that you do not inadvertently swap them. The 1T-CT-613 does not require external power.

Note: There are no user controls provided on the 1T-CT-613 Repeater. It's important that you should verify that the HDMI source functions properly with the HDMI display device before you attempt to use any of the extender system components. Failure to do this would introduce an unwanted variable that would then have to be resolved should the system not function as expected.

5.0 OPERATING THE UNITS

Once the connections have been made and power applied, there are no operational adjustments required. It is recommended however that the power on sequence be as follows: HDMI to Cat.6 Transmitter and HDMI Cat.6 Repeater (if used), HDMI to Cat.6 Receiver, HDMI source and HDMI destination device – in that order.

6.0 TROUBLESHOOTING

Other than faulty or swapped Cat.5e/Cat.6 cables or attempting to use the product over too great a distance, there are seldom problems with these Video Extender products.

If there is no image present at the remote location, connect the display device directly to the source to make certain that the problem is not in the display. If an image is present under those circumstances, make certain the transmitter and receiver(s) are receiving power. Next make certain your Cat.5e/6 cable is defect free and the RJ-45 connectors are securely attached to the cable at both ends. After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions before contacting TV One. Should the dealer's technical personnel be unable to assist you, contact TV One via our support website: ***http://tvone.crmdesk.com.*** Create a technical support request on the site and our support team will respond within a short period of time.

7.0 LIMITED WARRANTY

LIMITED WARRANTY – With the exceptions noted in the next paragraph, TV One warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in TV One's opinion, prove defective within this warranty period, TV One, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of TV One. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into TV One products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to TV One.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from TV One and return the product to a location designated by TV One, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to two years from the date of purchase. TV One assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

TV One makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of TV One with respect to any defective products will be limited to the repair or replacement of such products. In no event shall TV One be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

8.0 REGULATORY COMPLIANCE

The 1T-CT-610 Series HDMI to Cat.6 Extender products have been tested for compliance with appropriate FCC and CE rules and regulations. The Power Adaptor/Supply has been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, Regulations and/or Guidelines. This Product and Power Adapter is RoHS Compliant.

9.0 CONTACT INFORMATION

Should you have questions or require assistance with this product in areas not covered by this manual, please contact TV One at the appropriate location shown below.

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